REMARKS

The Office Action of June 6, 2003 was received and carefully reviewed. Accordingly, the Applicants present amendments to include in claim 7 the limitations of claim 1, correct the dependencies of claims 3, 5, 8-12 and cancel claims 1, 2, 4 and 6. For the reasons advanced in detail below, reconsideration and withdrawal of the currently pending rejection is requested. Claims 3, 5 and 7-12 remain pending.

With regard to the Examiner's rejection of claims 1-12, under 35 U.S.C. 103(a), as being obvious in view of the teachings of the Applicants' admitted prior art (APA) at Figures 14-18 combined with the teachings of Satoh '374, this rejection is again respectfully traversed.

Specifically, in addition to the arguments presented in the Amendment Under 37 C.F.R. 1.116 of February 20, 2003 (Cert. of Mail February 11, 2003), the Applicants further note that the claim 7 of the present invention recites "a plurality of girdling regions of the first conductivity type are defined in respective upper parts of the semiconductor region that are located under the plate electrodes." Neither of the cited references teaches or suggests this feature.

As shown in Figure 6 and Figures 10-14, according to the invention recited in claim 7 and with reference to the embodiments, the plurality of girdling regions 23, 24 are defined in respective upper parts of the semiconductor region 2 that are <u>located directly under the plate electrodes</u> 11a, 12a. In other words, each plate electrode is not provided between two adjacent girdling regions 23, 24. Hence, it is possible to restrain the forming of the p-type inversion layer described in Figure 18 (of the prior art) on the semiconductor region 2, and as a result, the breakdown voltage characteristic of the semiconductor device can be ensured even at high temperature.

According to Figures 15A-15B of Satoh et al., the n-type diffusion layers (used as source/drain) are formed surrounding the floating gate 14. Hence, as described in Figure 18, when the plastic encapsulant 19 increases in temperature and becomes semi-insulating, the plastic encapsulant is easily influenced by the potential due to the parasitic capacitance (see C5 of the instant Figure 15) between the plate electrode 11b and the plastic encapsulant 19, and the p-type inversion layer 30 (see instant Figure 17)

is easily formed on the surface of the semiconductor region 2 directly below the plate electrode. As a result, the breakdown voltage of the semiconductor device decreases at high temperature.

Turning back to the invention recited in claim 7, the invention includes the embodiments of Figures 6 and 11-13. A plurality of girdling regions 23, 24 are located directly under the plate electrodes 11a, 12a, respectively. A depletion layer, expanding laterally from the pn-junction between the body region 4 and the semiconductor region 2, is combined with depletion layers expanding downward from the regions 23 and 24. Thus, the curvature of the combined depletion layer increases. As a result, the electric field concentration can be reduced and the initial breakdown voltage can be increased considerably. The APA and Satoh et al. references fail to disclose or suggest the structure presently claimed and certainly do not appreciate the effect of the present invention, particularly since Satoh et al teaches a memory device which is inherently a low breakdown voltage (<20V) device.

Finally, it is noted that with regard to Figure 18 of the instant APA, the specification, at page 11, lines 13-19, clearly states that, unlike the device of Figure 15 (or Figures 16 and 17), the high breakdown voltage device does not include the floating plate electrodes 16 and 17, but replaces the plate electrodes instead with the girdling regions 23 and 24 which have the effects described at page 11, lines 20, to page 12, line 21. Therefore, one of ordinary skill in the prior art is taught by the APA to structure a high breakdown voltage semiconductor device with either floating plate electrodes 16 and 17, which are capacitively coupled to the metal electrodes 10b, 11b or 12b, or girdling regions 23 and 24, which are capacitively coupled to metal electrodes 10b, 11b or 12b. Consequently, since Satoh et al. contain absolutely no teaching or suggestion of providing both floating plate electrodes and girdling regions in the low breakdown voltage (<20 V) memory device (coupled to the metal (gate) electrodes), the teachings of the APA, combined with those of Satoh et al., do not teach or suggest to one of ordinary skill in the prior art to modify the teachings of the APA to provide both floating plate electrodes and girdling regions in the semiconductor device. If the Examiner is to maintain the rejection of claim 7, under 35 U.S.C. 103(a), over the

teachings of APA and Satoh et al. it is respectfully requested that the Examiner provide a specific technical discussion of why the presence both the floating plate electrodes and girdling regions in the semiconductor device would be suggested by the teachings of APA and Satoh et al.

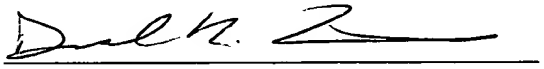
For the above reasons, the Applicants urge that the rejection of claims 1-12, under §103(a), based upon the combined teachings of the APA and Satoh et al. does not establish a *prima facie* case of obviousness based upon the criteria outlined in MPEP Chapter 2143, and respectfully request withdrawal of the §103(a) rejection of record.

Conclusion

Accordingly, Applicants respectfully contend that the claimed invention defines subject matter that is clearly patentably distinct over the prior art of record. It is respectfully requested that the rejection be withdrawn. If the Examiner believes further discussions with Applicants' representative would be beneficial in this case, he is invited to contact the undersigned.

Lastly, it is noted that a separate Petition for Extension of Time (three months) accompanies this response along with an authorization to charge the requisite extension of time fee to Deposit Account No. 19-2380 (740819-474). However, should that petition become separated from this Amendment, then this Amendment should be construed as containing such a petition. Likewise, any overage or shortage in the required payment should be applied to Deposit Account No. 19-2380 (740819-474).

Respectfully submitted,



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